Department of Environment & Conservation

Division of Water Resources / State Revolving Fund Loan Program
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FINDING OF NO SIGNIFICANT IMPACT
Approval of Facilities Plan
Fayetteville (Lincoln County), Tennessee
Loan No. DWF 2016-175

April 28, 2016

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by the Safe Drinking Water Act (SDWA), is the approval of a facilities plan prepared pursuant to EPA 816-R-97-005, Final Guidelines. In making this determination, the State Revolving Fund Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The State's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the State Revolving Fund Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Fayetteville has completed the facilities plan entitled "Facilities Plan Report, Fayetteville Public Utilities, Water System Improvements" dated January 2016. The facilities plan provides recommendations for making improvements to the existing water treatment system serving the City of Fayetteville (Lincoln County), Tennessee. This project consists of installing approximately 24,600 linear feet (LF) of 12-inch diameter ductile iron pipe water lines from the water treatment plant in Fayetteville to Huntsville Highway; and replacing approximately 38,000 LF of existing 2-inch and 6-inch diameter galvanized steel and asbestos cement water lines with 2-inch and 6-inch diameter polyvinyl chloride water lines along Huntsville Highway. The total estimated project cost is $5,050,000. A Drinking Water State Revolving Fund (DWSRF) loan in the amount of $5,050,000 has been requested for this project.

Attached is an Environmental Assessment containing detailed information supporting this action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Mr. Sam R. Gaddipati, Environmental Manager
Division of Water Resources, State Revolving Fund Loan Program
William R. Snodgrass TN Tower, 12th Floor
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or call or e-mail (615) 532-0462 or sam.gaddipati@tn.gov.

ENVIRONMENTAL ASSESSMENT

Approval of Facilities Plan
Fayetteville (Lincoln County), Tennessee
Loan No. DWF 2016-175

April 28, 2016

A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The City of Fayetteville has completed the facilities plan entitled "Facilities Plan Report, Fayetteville Public Utilities, Water System Improvements" dated January 2016. The facilities plan provides recommendations for making improvements to the existing water treatment system serving the City of Fayetteville (Lincoln County), Tennessee. This project consists of installing approximately 24,600 linear feet (LF) of 12-inch diameter ductile iron pipe water lines from the water treatment plant (WTP) in Fayetteville to Huntsville Highway; and replacing approximately 38,000 LF of existing 2-inch and 6-inch diameter galvanized steel (GS) and asbestos cement (AC) water lines with 2-inch and 6-inch diameter polyvinyl chloride (PVC) water lines along Huntsville Highway. The facilities planning area and project location are indicated on Figure No. 1 of this Environmental Assessment.

FUNDING STATUS

The facilities described above comprise the scope of Loan No. DWF 2016-175 scheduled for funding in fiscal year 2016. The estimated project costs are summarized in the following tabulation:

PROJECT CLASSIFICATIONS	COSTS ($)
Planning Fees	15,000
Design Fees	245,000
Engineering Basic Fees	105,000
Other Engineering Fees	45,000
Resident Inspection	240,000
Construction	4,400,000
TOTAL	**5,050,000**
Drinking Water State Revolving Fund (DWSRF) Loan	5,050,000

A DWSRF loan in the amount of $5,050,000 has been requested for this project.

B. EXISTING ENVIRONMENT

The City of Fayetteville's Planning Area is located in Lincoln County in the middle part of Tennessee. A discussion of environmental features in the area includes the following:

SURFACE WATERS

Surface waters within the City of Fayetteville's Planning Area include the Elk River and its tributaries. Designated uses for the Elk River include domestic water supply, industrial water supply, fish and aquatic life, irrigation, and livestock watering and wildlife.

The Tennessee Department of Environment and Conservation (TDEC) has assessed the Elk River as an impaired waterbody because of pasture grazing in the Final Version, Year 2014 303(d) list. The cause is Escherichia coli.

The Fayetteville WTP supplies drinking water to residents in the City of Fayetteville. Raw water is obtained from the Elk River, upstream of the Fayetteville Wastewater Treatment Plant.

GROUNDWATER

Groundwater in the Fayetteville Planning Area occurs in the Central Basin Aquifer System. The Central Basin Aquifer is an important source of drinking water for most of the Central Basin and the Sequatchie Valley. Groundwater occurs primarily in solution openings and fractures, and the flow system is generally limited to 300 feet or less below land surface. However, some fractures and minor faults may allow vertical recharge to the underlying Knox Group, which marks the lower boundary of the Central Basin aquifer system. The upper limit of the Central Basin aquifer system is the Chattanooga Shale, an effective confining unit.

SOILS

Primary soils in the planning area include the Etowah-Sequatchie-Arrington Soil Association and is characterized by gently sloping; very deep, nearly level to moderately steep, well drained loamy alluvium and clayey residuum soils that are formed from weathered and interbedded sedimentary rock.

TOPOGRAPHY

The Fayetteville Planning Area lies within the Central Basin of the Interior Low Plateaus Physiographic Region and is characterized by gently rolling and undulating terrain crossed by numerous streams. Elevations range from approximately 700 feet above mean sea level (MSL) to 950 feet above MSL. The recorded elevation of the City of Fayetteville is 705 feet above MSL.

OTHER ENVIRONMENTAL FEATURES

No wild or scenic rivers or unique agricultural, scientific, cultural, ecological, or natural areas were identified in the Fayetteville Planning Area.

C. EXISTING WATER FACILITIES

Fayetteville Public Utilities (FPU) owns and operates the only public water treatment and distribution system serving the City of Fayetteville and surrounding areas in Lincoln County. The Lincoln County Board of Public Utilities and Petersburgh Water System purchase drinking water from the FPU through metered connections.

The water treatment plant, originally built in 1949 with the latest modifications and completed in 2015, has a current design capacity of 5.6 MGD. The raw water intake and pump station for the WTP are located on the Elk River. Raw water is screened with a passive intake screen equipped with air burst cleaning and pumped to the WTP by two vertical turbine pumps, each with the capacity to provide 4.5 MGD. The plant currently consists of high service pumps, flocculation basins, sedimentation basins, equalization basins, filtration, chemical feed equipment, laboratory,

a clearwell, and sludge handling facilities. The current WTP has the capacity to adequately produce drinking water to meet the demands of the planning area.

The distribution system consists of approximately 140 miles of 2-inch through 24-inch diameter DIP, corrugated iron, PVC, GS, and AC distribution water mains; 640 hydrants, four water storage tanks (with a combined capacity of 3,600,000 gallons), and three boosters pump stations.

The water distribution system was originally constructed to serve the more densely populated areas of the city center, looping the central business district and town square. As the city grew, water distribution extensions were made further and further away from the city center. The current configuration of the distribution system generally requires water to be sent northwest from the WTP to the city center loop before it can be sent elsewhere. In general, the existing tanks and pump stations are in good working condition.

D. NEED FOR PROPOSED FACILITIES AND ACTIONS

While drinking water production is sufficient, the ability to reliably transport water is limited by the current configuration of the existing transmission system, particularly to the south of the Elk River. Over time, AC and GS pipes in the transmission system have deteriorated from the corrosion at joints resulting in loss of mechanical strength and have caused leaks. Several miles of old and deteriorated AC and GS distribution lines are in poor condition and are causing inadequate water pressure and flow in the planning area and need to be replaced.

Also, if the 24-inch diameter transmission main (the primary source of the distribution of drinking water in the City) would be taken out of service nearly anywhere along its length, customers would be forced to rely on small distribution lines to back-feed the southern areas of the Fayetteville Planning Area. This action would result in water shortages and outages to the existing customer. Aging and deteriorating distribution lines will continue to cause leaks if they are not rehabilitated or replaced. Therefore, installing the proposed waterlines and rehabilitating the aging and deteriorating distribution lines will provide the customers with continuous safe and dependable drinking water in the planning area.

Existing and projected facility conditions are shown in the following chart:

EXISTING AND PROJECTED FACILITY CONDITIONS

POPULATION	EXISTING (2016)	PROJECTED (2036)
City of Fayetteville	7,102	7,575
Percent Served	100%	100%
Planning Area Excluding City of Fayetteville	1,854	1,978
Percent Served	100%	100%
Total Planning Area	8,956	9,553
Percent Served	100%	100%

WATER NEEDS (gpd)	EXISTING (2016)	PROJECTED (2036)
Residential	607,000	647,000
Commercial/Industrial	704,000	751,000
Wholesale	524,000	559,000
Loss	460,000	460,000
TOTAL	2,300,000	2,417,000

E. ALTERNATIVES ANALYSIS

Several alternatives, including a "No-action" alternative, were evaluated for the water distribution and transmission system in the January 2016, Facilities Plan. Discussions of the evaluation of these alternatives and the recommended plan are following:

NO-ACTION

The "No-Action" alternative was not a viable alternative. If no action is taken, a disruption to the existing primary transmission main risks significant water shortages or outages. Aging and deteriorating distribution lines will continue to cause leaks if they are not rehabilitated or replaced. Therefore, the "No-Action" alternative was rejected.

INSTALL NEW 12-INCH DIAMETER PVC TRANSMISSION MAINS AND REPLACEMENT OF EXISTING WATER LINES

This alternative consists of installing approximately 24,600 LF of 12-inch diameter PVC transmission main from the WTP on Eldad Road to the end of the existing 12-inch diameter main on Huntsville Highway near the intersection with Ardmore Highway and replacing 38,000 LF of existing 2-inch and 6-inch diameter GS and AC water lines with 2-inch and 6-inch diameter PVC water lines along Huntsville Highway. The new 12-inch diameter main would approach the

existing main from the south and create a redundant water transmission loop south of the Elk River. The loop provides FPU with the ability to transmit water to this region from either the north or the south in the case of a disruption. The loop also increases the water pressure and flow to the planning area. However, the costs associated with the construction and maintenance of the transmission lines do not make this alternative the most cost–effective and was rejected.

INSTALL NEW 12-INCH DIAMETER DIP AND 16-INCH DIAMETER TRANSMISSION MAINS AND REPLACEMENT OF EXISTING WATER LINES

This alternative consists of installing approximately 7,500 LF of 12-inch diameter DIP transmission main from the end of the city center loop at Thornton Taylor Parkway south along Huntsville Highway to its intersection with Ardmore Highway; replacing approximately 38,000 LF of existing 2-inch and 6-inch diameter GS and AC water lines with 2-inch and 6-inch diameter PVC water lines in areas along Huntsville Highway; and installing approximately 6,900 LF of 16-inch diameter DIP transmission mains to complete the city center transmission loop over Norris Creek between Eldad Road and Huntsville Highway, as well as provide a connection of the Norris Street 16-inch diameter transmission main to the Holman Hill Storage Tank. The new 12-inch diameter DIP transmission main would parallel the existing 12-inch diameter main on Huntsville Highway, approaching its destination from the north; provides FPU with additional redundancy in its water transmission, and increases the water pressure and flow to the region. However, the costs associated with the construction and maintenance of the transmission lines do not make this alternative the most cost–effective and was rejected.

INSTALL NEW 12-INCH DIAMETER DIP TRANSMISSION MAINS AND REPLACEMENT OF EXISTING WATER LINES

This alternative consists of installing approximately 24,600 LF of 12-inch diameter DIP water lines from the WTP in Fayetteville to Huntsville Highway; and replacing approximately 38,000 LF of existing 2-inch and 6-inch diameter GS and AC water lines with 2-inch and 6-inch diameter PVC water lines along Huntsville Highway. This alternative was the most cost-effective and was selected.

F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be to provide a more reliable and redundant source of drinking water to customers in the Fayetteville Planning Area.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will only be temporary. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.

2. Soil or landscaping maintenance procedures will be included in the specifications.

3. The contractor will develop an Erosion Control Plan. It should contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It should include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

Acquisition of United States Army, Corps of Engineers (USACE) Section 10/404 permit will be required prior to the approval of construction plans and specifications. Any findings that must be preserved shall be removed/protected/preserved in accordance with state and federal laws, regulations, and/or policies.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on March 3, 2016, at 6:00 p.m., local time. The selected plan for water distribution system improvements and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

The annual median household income for the City of Fayetteville is $33,170. The current user rate for the typical residential user (5,000 gallons per month) is $32.31 per month which is approximately one percent of the current annual household median income. Therefore, no incremental increase in user charges will be required.

Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development (ECD)
3. Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control (DAPC)
4. Tennessee Department of Transportation (TDOT)
5. Tennessee Historical Commission
6. TDEC, Division of Archaeology (DA)
7. Tennessee Geological Survey
8. TDEC, Division of Solid Waste Management (DSWM)
9. TDEC, Division of Water Resources (DWR)
10. Tennessee Wildlife Resources Agency (TWRA)
11. United States Army Corps of Engineers (USACE)
12. United States Fish and Wildlife Planning (USF&W)
13. City of Fayetteville
14. Lincoln County
15. Trestles, LLC

H. SPECIAL CONDITIONS

The State Revolving Fund loan agreement will have the following special condition:

> The City of Fayetteville shall obtain applicable Section 10/404 permit from the USACE to meet the requirements of wetlands protection and stream crossing statutes prior to the approval of plans and specifications. A letter from the USACE stating that the permits are not needed will obviate this requirement.